
This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

GoogleTM books

<https://books.google.com>



DIRECTIONS
FOR
THE RIVER DOURO.

All the Bearings are Magnetic.

In thick weather all landfalls are liable to mistake ; but, after an examination of the chart, the land in the vicinity of Oporto may be easily recognised, as the heights of *Monte da Rabida* and of *Furada*, being 200 feet high, and only $1\frac{1}{2}$ mile from the coast line, will point out the entrance of the river by the peculiar haze behind them.

Making the
land.

The entrance of the Douro may be known at a considerable distance, if the weather be moderately clear, by the hills of *Congregados* and *Lapa*, on the northern limits of the city. The latter hill, which is 500 feet high, may be distinguished by a round tower and a heavy-looking convent. To the northward is the very conspicuous chapel of *San Joaõ da Apollonia*, on the heights over *Matozinhos* ; it is easily known by its three large umbrella-shaped trees. On the south, and at nearly the same distance from the Lapa, is *St. Ovidio* look-out house, about the same apparent magnitude as the chapel of *San Apollonia* ; and, at the entrance, the *Church of San Joaõ da Foz*, if the weather be fine, is very conspicuous.

Landmarks.

The city of Oporto may be seen in clear weather at the distance of 12 or 14 miles. The *Steeple of Los Clerigos* is a very prominent object, and when brought E. S. E. the land may be approached on this bearing by any vessel until the water shoals to 9 fathoms. By night it would be advisable not to proceed into less than 15 fathoms, unless the weather be very fine, in which case she may run on into 12, where it would be advisable to anchor until daylight, as, in the event of calms, currents,

Bearing of
approach.

Pilots. morning fogs, or easterly winds, much delay and loss of tide might be occasioned. Pilots will come off if the night be fine.

Appearance of the land.

To a vessel coming from the southward, into 12 fathoms, the probable outline of the land to the northward will be the *Queijo Fort*, black, with four white-capped turrets at its angles; *Crasto Hill*, flat-crowned, and rising from the *Queijo* and Lighthouse; and in the distance the chapel of *San Joaõ da Apollonia*, capped by the umbrella trees. The coast to the southward of the Cabedello is sandy, but may be distinguished from it by the *Fishermen's huts*, which commence a few miles to the southward, and continue a considerable distance.

Approach by sounding.

Should the weather be too hazy to distinguish the outline above described, it will be necessary to pay attention to the soundings, which cannot far mislead, if to the southward of the *Lyshongs*. Off the bar, in 9 fathoms, the bottom is hard and sandy; to the northward or southward of it the sand is mixed with mud. In this depth, if near the bar, the vessel will be a little more than a mile off the land; and here the rollers on the bar, if they top, will be perceived. If to the northward of the bar, the convent of *Santa Clara*, near *Villa do Condé*, will be apparent in clear weather.

Marks for approaching.

If the chapel of *San Joaõ da Apollonia* be made out, bring it and the *Lighthouse* in one, N. E. b. E. $\frac{1}{4}$ E., and stand on in that direction until *Santa Catharina Church* and *Lapa Convent* are in a line; these cross bearings will place a vessel in 6 fathoms, and in the best position for taking a pilot on board. If compelled to wait, give west to S. W. the preference in laying the ship's head to seaward. A considerable offset will secure her from danger of in-draught in this position; the offset, especially during the winter, prevailing until the freshes have been overcome by the ordinary flood tides, which are pretty regular from June until November.

In hazy weather.

If, on making the land, its higher outline cannot be defined it will be well to look narrowly to the *beach*, bearing in mind, that although a considerable range of sandy beach lies to the southward of the Douro, yet it is there studded with huts, whereas none are to be seen near the Douro. Should the beach appear to be sand, with a few boulders or large rounded rocks,

the eye should be carried northerly to ascertain whether the slope of the dark land terminates in sand, with a clump of these boulders there as well as on the land. If this be the case the vessel will be to the southward of the bar, and off its shoalest part. By tracing the sand (which is a long spit) northerly, the fort of *St. João de Foz* will be discerned, and the *South Filgueira*. This rock is connected by sunken rocks with the main land at the fort. If, on the other hand, the shore should exhibit rough rocky ledges, with sandy bays between them, the vessel will be to the northward of the bar, and the Black Fort (*Queijo*) will be seen where the long sandy beach commences to the northward. Here the water should not be shoaled to less than 7 fathoms, and it would be advisable to keep to the S. W., as the *Lyshongs* will bear about N. b. W. $\frac{1}{2}$ W., and these rocks, with a south-wester, are not easily weathered. The Black Fort is distant from *St. João da Foz* 2830 yards, or nearly $1\frac{1}{2}$ mile; the *South Filgueira* bears from it south, and the *North Filgueira* S. b. W. little more than a mile.

If the fog be not very thick the church of *Santa Catharina*, and the white dome on *Anjo* will probably be seen; keeping these objects in line, vessels of 12 feet draught should not shoal to less than 5 fathoms; but as long as the *North Filgueira* is kept four times its own space open to the eastward of the *Black Fort*, there is no risk in this depth, provided the vessel's head be off shore, with steerage way. If there be much swell this will probably be the line of the rollers themselves—sufficient caution when observed, but sometimes deceitful outside.

The bar of Oporto is an unsafe lee shore, especially with the wind from W. to S. W.; but, with the wind from N. W., vessels may reach off well, and may, with safety, approach to examine the state of the bar, provided always that the latitude be known (or land made out), and the usual precautions of the lead and a good look out be attended to. If the weather should be so hazy that *St. João da Foz Fort* and the Lighthouse cannot be distinguished, it will be unsafe to approach the bar; at the same time it should be borne in mind, that if the haziness commenced before 10 A.M., and not the result of bad weather, it may be expected to clear off about noon.

Approach to
the bar.

Precautions in
approaching
the bar.

Anchorage outside the bar.

The anchorage outside is good in any depth between 10 and 14 fathoms; but if bad weather be anticipated the *Lyshongs* should bear at least north from the anchorage. Slip buoys should always be on, as the swell at times renders weighing dangerous as well as impossible.

Entering the Douro.

To give sufficient directions to a stranger for entering the Douro is almost impossible, for the channel is so intricate that, even with a considerable acquaintance with the place, much care and promptitude is requisite, and most particularly with regard to the helm.

Rollers on the bar.

The western swell being checked by the freshes from the Douro, the rollers on the bar become terrific, and not unfrequently detain vessels entering or departing for five or six weeks.

Communication by boats.

Although the bar may be impassable it does not follow that there can be no communication with the shore, as even at half ebb, the worst time of tide for the bar, boats can go off from the beach between Foz and the Lighthouse, and nearly at all times from the huts under *Monte Crasto*. The boats used for this purpose (*Catraias*) go through very heavy seas safely, when no boats belonging to our ships could live.

Long mark for entering.
View, No. 1.

The long leading mark is *Santa Catharina Church* on with the *South Belfry of Lapa Convent*, and on this line (E. $\frac{3}{4}$ S.) vessels should stand in for the bar, particularly if the red flag should be displayed, and the pilot-boat on the look-out. Should the haze prevent the *Lapa* from being seen, *Anjo Dome* and *Santa Catharina* will answer the same purpose; and, when on the bar, it is rather safer, although the space between those marks is apparently trifling.

Cross marks.

Two cross bearings will now come on nearly at the same instant, and, even in the thickest navigating weather, can be discovered, viz., *Queijo Fort* and *North Filgueira*, and the *Northern* or *Pilot's Staff of San Joaõ da Foz* over *South Filgueira*. This is the shallowest part of the bar. Now, edge northerly to bring a building called the *Bar Mark* and *Santa Catharina* in one, and stand on, keeping a little northerly withal, but bearing in mind that the cross bearings of *Bar Mark* and the cross of *Anjo Chapel*, as well as the two staffs of *St. Joaõ da Foz*, in line, meet on a very small rock called the *Staff Rock*,

View, No. 3.

Staff Rock.

which is awash at low water springs, with deep water round it. The moment the line of the two staffs is passed, get into the line of *Anjo Chapel Cross and Bar Mark*, and stand on until abreast the semi-circular stone wall, against which a vessel may almost rub her side. From thence pass on the south side of the *Cruz*, but very close, as a rock called the *Agulha* or Needle, Cruz.
Agulha. having 18 inches at low water, lies S. $\frac{1}{4}$ W. from it half a cable's length. After passing the *Cruz* (looking astern) keep the centre of *South Filgueira* on with the south side of the *Cruz*, until the dome of the *Foz* is over the south extremity of the *Anjo Battery* ruins. The course should then be shaped for the *willow tree*, at the fountain under the *Monte da Rabida*, until *Santa Catharina* is well open of the swampy island, when you may steer direct for *Clerigos*, recollecting that all the dangers, after passing the fountain steps, are on the south side. Merchantmen anchor above and below these steps: ships of war abreast the steps in the fine season, and higher up (as will be noticed) in the freshes.

The dangers at and within the bar are much exaggerated by the pilots, whose noise and confusion in bringing a vessel in is intended to produce undue impressions of intricacy and danger, whereas vessels drawing from 9 to 12 feet may safely enter at high water, and even at half-flood, without a pilot, many cases having occurred in which masters who would not be imposed on have brought the vessels over the bar in defiance of the pilot's assertion that such a step would be impracticable. Pilots.

What is considered to be properly the bar is the highest part of the ridge of sand, and on which there are less than 2 fathoms at low water; but within the bar the channel between the *Lages* (flat-topped rocks) has sufficient water for a frigate. This channel is comprised between those rocks, or rather between the lines *Bar Mark* and *Anjo Chapel*, and the *Lapa Turret* and *Anjo Dome*. The *South Lage* has 9 feet at low water, the cross mark for it being the *North Filgueira*, seen through the gap of the southern, as in View, No. 5. Channel between North and South Lages.

A little more than a cable's length inside the *North Lage*, Staff Rock. lies the *Staff Rock*, which is awash at low water springs, and, though small and with deep water round it, is the most dan-

gerous part of the channel, because, on the ebb, particularly in the freshes, the tide sets directly on it, and, consequently, by the slightest sheer a vessel would risk being laid broadside on. Even with the velocity of a steamer I have been some minutes detained at this spot. The marks for it, however, are perfect, viz., the *Bar Mark* over the *Cross of Anjo Chapel* and the *two Staffs of St. João da Foz* in one. To clear it the *south edge of the Bar Mark* should be kept on with the *Cross*, as the instant it is fairly passed you have to edge northerly.

Patch of the Cruz.

The next danger is a patch about 40 fathoms N. N. W. of the Cruz, and dry at low water springs. The marks for it are the *South Staff of the Foz* over the *South Pillar* of the Company's Hospital, and *Clerigos Steeple*, just clear of the south edge of the *large detached rock* between Cruz and Anjo. This patch, however, is generally avoided by hauling over to the Cabedello side, except on a strong *ebb*, when the course from the circular wall is direct for the Cruz rock, which allows the tide to sheer you clear of it. In summer weather, with slack water, there is no danger within the Cabedello bay, and rings are secured in the rocks to admit of vessels mooring in the 6 fathoms hole—10 yards from the beach 3 fathoms will be found.

Agulha.

The Agulha is a small pinnacle rising in 3 fathoms to within 18 inches of the surface. It bears S. $\frac{3}{4}$ W. half a cable from the Cruz. The channel is quite clear on either side of it, but that generally preferred is to shave the Cruz. The marks for it are well defined, and always visible except in a dense fog. The first is the *Dome of the Foz* over the *Second Pillar* of the Company's Hospital; the second the *Cross of Anjo Church* on with the *left edge of Anjo Dome*.

View 6.

View 7.

Three rocks above the Cruz.

Within the Cruz will be found three patches to be avoided by ships drawing above 12 feet. The first is on the line of Anjo and Foz Domes in one, and may be avoided by bringing in one the *South Filguera* and the large rock N. E. of the Cruz, just before bringing the former mark on, so as to pass close to the edge of the Northern Flat. The next patch has *Anjo Chapel Cross* and *Foz Dome* in one, and may be avoided by hauling northerly the moment the *whole Church of Santa Catharina* comes over the *west end* of the high-water mark of *Swampy*

Island. The last patch is a continuation of an irregular flat extending from the Lazaretto; but that side of the channel vessels ought not to approach.

From November until May the bar is but casually free from rollers. Those which endanger vessels rarely top heavily at the distance of a mile from the shore, unless in gales; but should the ebb have made, the attempt to enter against it would be attended with extreme danger.

Vessels closing the land with dispatches should stand in on either the long or short leading marks above-mentioned, until the Chapel of *San João da Apollonia* and *Lighthouse* are in one. This intersection will be found in 6 fathoms 3 cables' lengths from the bar. With her head to the southward she should endeavour to keep mark No. 2 on, which will prevent her falling too far towards the south flats, and afford her scope for standing in again if requisite. Cutters and small vessels drawing 10 to 12 feet may stand in on those marks as close as 4, or perhaps 3 fathoms, but should go round just before the *South Staff of the Foz* is over the *South Filgueira*; and it should be borne in mind, as a check, that the Black Fort (Queijo) must be kept a full point open of the North Filgueira.

On the leading marks No. 1 or 3, vessels can be clearly seen by those inside, and can communicate by signal. It is unsafe to trust boats outside the bar on the ebb, unless they have a vessel to resort to, as the overfalls, on freshes or springs, would prevent their evading any roller which might follow them in.

The base for the accompanying Survey was measured on the Breakwater, which was originally intended to have been continued across the bight, and connected with a similar work near the south shore, in hopes that by confining the stream it would prevent the disturbance occasioned outside by the freshes. It is nearly covered at high water.

With respect to the shifting of the bar, it is now generally admitted that the changes are not so great as former accounts would seem to indicate. To determine these changes the pilots merely trust to continual sounding with a pole, and note on which of their four lines of approach they believe it to be deepest. They affirm that in the heaviest freshes the tide is not increased on the bar more than one foot.

Rollers.

Picking up or sending in boats.

Views 1, 2, and 3.

Mark for tacking.

Communication by signals.

Breakwater.

Shifting of the bar.

The rise of tide on the bar may be reckoned on an average at 7, and at springs 10 feet, which may be further increased by 9 inches or a foot in easterly winds. Its rise, as determined with great accuracy before the freshes, on the spring tides, amounted to

ft.	in.	
10	3	at the Cruz Rock (open to sea)
10	0	one mile further up.

Time of high water at full and change	h.	m.
	2	30

Freshes.

The freshes are occasioned more by extensive thaws in the mountainous country which feeds this river than by heavy rains, and may be expected in their greatest force during the months of March and April—even as late as May; but the increased rise and rapidity of the tides which is occasioned by rain alone may occur between November and May. The latter do not produce any dangerous consequences; but the effect of thaws and rain combined occasions such an increase in the rapidity of the stream, that vessels cannot then trust to their anchors, which are sometimes undermined by the current, and not unfrequently fouled by trees and other large bodies with which the stream is constantly charged. The rise of the river under these circumstances is very great. It is said by actual measurement to be 10 feet above springs, and the velocity from the sudden fall at the bend has been estimated by the pilots at almost 14 knots.

Moorings.

During the freshes the vessels are secured in tiers, the innermost being fastened to trees, or to great stone bollards let into the piers for the purpose, and are kept about 40 feet from the shore by brows both forward and aft, and well lashed to admit of rising.

Oblique moorings.

It is surprising that oblique moorings have not been laid down, for, with the present practice, should the rise be unusually great, and the brows give way, the vessels must naturally come in upon the quays, and thus be left high and dry; and should the keel happen to take upon the quay-edge, their situation would be extremely perilous. Should any of His Majesty's ships be compelled to ride in the Douro during the vernal freshes, a pair of bower cables might be stretched obliquely

from side to side, so that ships could moor with a stream cable to the nearest shore, and a bower to the chains; thus avoiding the uncertainty of the brow, as well as affording a choice of position, and, as the strain must be steady, giving complete security.

It is said that the eddy, during the freshes, has been strong enough to bring a boat from Lazaretto Point up to the Cavaco Gate. Eddy.

The best anchorage is in the Bight of San Antonio, where the freshes cause a kind of protecting eddy, and as near the convent as possible; not allowing the Dome of the Serra Convent to be seen *outside* the quay. There will be no danger of grounding at low water springs. It may be here mentioned, that the bridge of boats is occasionally removed to the south bank, and moored from the bend of the quay to abreast the Company's Store. No vessel is allowed to interfere with the space those boats occupy; and as it would be awkward to look for a new berth after the freshes have commenced, merchantmen should bear this in mind, as there would be but little ceremony used in cutting them adrift. The best private berth, therefore, will be to bring the Company's Store, *a white house*, on the starboard bow, and the *Eastern red gate* of the garden wall of the *Cavaco** abreast the starboard gangway. It is customary to make the starboard bower cable fast to a tree, or to bury an anchor withinside the quay. The holding ground in the stream is very loose; however a bower is usually laid out there at a long scope to keep the off strain, and as the stream swells, gradually heave in shore, until the starboard anchor or tree is nearly ahead. In this position but little strain is experienced, and the larboard chain will bury itself in the mud, which is very deep. Best anchorage.

The principal watering-places for ships of war, as well as merchantmen, are at a fountain under M. da Rabida; at a convenient projecting spout opposite, under the Lazaretto; and, when in San Antonio Bight, on the lower steps at the end of the Cavaco wall. Bridge of boats.

The customary place for rating chronometers was at the fountain just above the road, lat. $41^{\circ} 8' 50''$ N., long. $8^{\circ} 35' 18''$ W. Watering.

* The Cavaco is a large yellow house inside the wall which extends along the quay from the Company's wine store. Rating chronometers.

Port dues, pilotage, &c.

It is pretended that if the master of a vessel were to attempt to bring her in without a pilot, he would be prevented by the Fort of St. Joaõ da Foz; and merchantmen are therefore subjected to much imposition in pilot charges. Outward bound vessels have been detained in the deep water before St. Joaõ da Foz ten days, and with an easterly wind, under pretence of there not being sufficient water on the bar, and afterwards towed and kedged out with the wind from the westward. The pilots being paid, whether embarked or not, are indifferent on the subject, and are not likely to risk any thing in bringing a vessel in or taking her out. Little redress can be looked for if a complaint should be made.

The rate of pilotage for ships of war, under ordinary circumstances, may be stated at 15 *mil-reis*, supposing the ship to enter at high water attended by one boat. Should the tide be running and the wind fail, recourse is had to warps, which the boatmen manage with great dexterity, each boat bringing her own kedge. Under some circumstances the charges are greater than above stated; but the extra charge may be avoided by expressing an intention not to enter until nearly slack tide, particularly if the bar does not top or break, and the wind blows in. The rate in fine weather, without extraordinary assistance, may vary from 15 to 18 *mil-reis*. It is customary when a vessel is entering or waiting for tide to hoist a red flag on the north or pilot's staff of St. Joaõ da Foz, to denote that there is sufficient depth over the bar.

The following items will exhibit the mean rate of charges, whether for ships of war or merchantmen:—

	Reis.
Piloto Mor	1,000
Second ditto	600
Sixteen Boatmen, a 17½ vintems	2,400
Boat	6,000
Kedge	480
San Joaõ da Foz	4,000
Health Boat, &c.	520
	<hr/> 15,000 <hr/>

Some vessels, to avoid dispute, and to insure the good-will of the pilots who attend them (and who are selected by the owners or consignees), pay a settled sum. This is generally 20 or 25 mil-reis; and under these circumstances vessels are sure to get to sea if practicable.

The city of Oporto (O Porto, The Port) is in the province of Entre Douro e Minho, on a somewhat abrupt eminence of about 200 feet elevation, which rises from the north bank of the river Douro, and is bounded by hills rising to the height of 500 feet, of which Congregados is the most elevated. The city of Oporto.

The houses of the city are continued down the river, on the opposite side of which, between the heights of Furada and the Serra Convent, lies the town of Villa Nova da Gaia. This was originally the principal town; its original name was Calle, and that of the port, Portus-Calle, from whence it is said the present name of the kingdom is derived.

The buildings of Oporto are respectable. The population is estimated at between 70 and 80,000. The climate is considered peculiarly healthy, and the necessaries of life are abundant and reasonable in price; for instance (assuming the Spanish dollar to be the same value as a mil-reis, or 1,000 reis),— Supplies.

	Reis.
Beef, per lb.	
Mutton, ditto	} 60
Pork, ditto	
Fowls, per dozen	2,400
Eggs, per 100	480

Of fish there is a plentiful supply. The market furnishes a great variety of fruit of superior quality, as well as excellent dried fruits.

The city is profusely supplied with excellent water, and the conduits are in general clean. So many of these occur between the city and San Joaõ da Foz, that wherever a vessel may chance to anchor she can readily procure this valuable necessary. Fuel is scarce.

Wine.

The principal "wine lodges" are in Villa Nova—indeed, the chief wealth of the city is deposited on that side of the river. The amount of the exports of wine is often estimated much beyond the truth. By a printed document of 1831, the exports for that year amounted to 20,243 pipes; perhaps 22,000 pipes may be taken as a fair average, of which two-thirds, it may be assumed, are British property.

EDWARD BELCHER

Commander of H. M. S. Agamemnon